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Beardless Irises

Edited by the Secretary
R. S. STURTEVANT

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Siberian Seedlings

Photo by T. J. Sturtevant

Beardless Irises

(A Review by the Editor)

In the following notes I have quoted so freely from Mr. Dykes that the use of quotation marks seemed impossible, but in such a brief compilation from so great an accumulation of material as "The Genus Iris" errors are most likely and for all such I am responsible. Except that I have followed the American code in capitalization and spelling I have followed the nomenclature of this great monograph. This has meant at least casual reference to a number of species that are practically unknown and almost unobtainable, but it will serve as a guide to those of you who are not fortunate enough to own the book. On the other hand it has brought about the omission of a number of species which owing to a lack of available material Mr. Dykes did not consider as worthy of specific rank. As you all realize increased interest in hybridization has greatly reduced the number of species of Tall Bearded Irises, the botanist and the hybridist seem to be constantly at odds, the one through the collection of native material finds new forms worthy of record, the other through pedigree breeding clarifies the road back to a common origin. In the Beardless irises, among the Spurias and to a certain extent among the Sibiricas Mr. Dykes has found the few fundamental species responsible, but in other groups much remains to be done. To the gardener color variations are most important, to the botanist color is ephemeral and difficult to record therefore relatively unimportant, the one deals with living plants, the other with dried specimens. Mr. Dykes has grown much of the material he has described, but he has delved deeply also into herbarium records and between the two he has attempted the impossible task of satisfying both the gardener and the botanist. "The Genus Iris" marks a great advance, but the layman should realize that even in such a book we have not reached the end. This was brought vividly to my attention recently in a conversation with Prof. Fernald of the Gray Herbarium who on a recent trip to Cape Cod, that hunting ground of botanists for generations, brought back some species entirely unknown before.

This has been rather a digression and there are a few general points applicable to the Beardless Irises which require a review. There are always exceptions to prove the rule, but on the whole the Beardless irises are easily grown in good garden soil and rarely require lime or good drainage. Furthermore, with the exception of I. unguicularis they are reliably hardy practically throughout the temperate regions and may be easily raised from seed. The seeds may be sown in the open ground and the seedlings of most species bloom the third or fourth year. A number however dislike transplanting and should be moved into permanent positions as early as possible. Many species are self-fertilized which makes for a heavy crop of seed, but also makes it necessary to open the buds and remove the stamens early when hand-fertilization is desired. This point is rarely emphasized, but it may explain the frequent lack of success in trying unusual crosses.

There are varieties even among the Beardless suited to almost every conceivable site and yet they are little known in our gardens and receive even less attention in our garden publications. Our interest has been too greatly centered upon Tall Bearded Irises and I hope that every member will make a point of trying at least one other species this year and of making a report for the benefit of his fellow members.

While much as my interest is centered on Miss Sturtevant's hybridizing our garden contains many species and when it becomes neces-

Iris douglasiana

Photo by E. L. Crandall

sary to write about them I am thankful that I do not have to depend wholly upon the splendid work of Mr. Dykes and others.

Iris bracteata. Oregon. A dwarf with yellow flowers in the type, the blade of the falls marked by four conspicuous veins, the inner pair being nearly parallel and continuing nearly to the apex. The slender rhizomes are wide creeping but send out few branches. Moreover only about two of the long dark evergreen leaves grow from each point. There are some vigorous growing hybrids of closer growth and of an almost crimson color.

Like others of the Californian group this is impatient of removal and should always be raised from seed and planted out where it is to remain. That one plant produced no less than eleven flower stems at its first flowering in two years from seed is indicative of its thrifty growth.

I.bulleyana. Western China. This rarely obtainable species is similar to I.clarkei but has the hollow stem typical of the Sibirica group. The styles are darker than the narrow standards which are distinctively divergent at an angle of about 60 degrees, and the falls conspicuously veined and blotched on a cream ground are held almost horizontally. As pictured the carriage of the petals is distinctive, the blue-purple coloring far from striking, but the plant is of recent introduction and I suspect that Red Emperor (Sturtevant) a variety recently introduced by Mrs. Cleveland may be one form of Bulleyana. The original plant appeared in a bed of seedlings from imported seed, but the records were lost. The plant is thrifty, the slender foliage like that of a siberica rather stiff and the flowers, slightly overtopping the foliage are of a distinctive red-purple tone. Self-fertilized seedlings come perhaps 50% true in color, the balance grading to blue-purple, but as none have that solid, almost velvety quality that we find in the better forms of orientalis only the red-purple possesses garden value. Height rarely over two feet and tho in habit not as graceful as the pictured bulleyana, it seems more probable that Red Emperor should be representative of a new species than merely a hybrid of orientalis.

I.bungei. A species of doubtful standing belonging to the little known Tenuifolia group of beardless irises from Eastern and Central Asia. Dwarf and tufted.

I.chrysographes. One of the most handsome of the newer Sibiricas from Western China, easily grown from seed or division. The plant is less tufted, the foliage more graceful, and the velvety dark red-purple flowers larger than in the Siberian irises. The narrow spreading standards, the stiffly over-arching styles, and the oblong, drooping to straight-hanging falls are all deep red-purple in sharp contrast with the golden veins on the haft. In the seedlings the size of the flower and the amount of the venation varies, but not sufficiently to decrease the value of a variety that blooms before the Japanese, but well after the main iris show has passed. The seeds, flattened, pyriform, with rather smooth coats are characteristic.

Crossed with forresti, bulleyana (Jenkinsi), and sibirica.

Chrysofor a hybrid with forresti.

I.clarkei. Another species from Western China is rare, but easily distinguished by its solid stem. The flower is very variable in its blue to purple tones, the standards spreading almost horizontally, the blade of the falls straight-hanging abruptly from the haft. Altho one of the first species to be described from Sikkim it is still rare and presumably of little garden value.

I. delavayi. Close to clarkei but with a hollow stem and the standards are held at an angle of 45 degrees, standards deep violet, the falls

with white markings and a conspicuous white patch at the bend. The flower stems reach a height of 3-4 ft. and the plants bloom in July with the Japanese, this last the chief point of garden value. Color varies in seedlings.

I. douglasiana. A Californian species (coastal) varying from pale mauve, sometimes with a creamy touch, to deep blue-purple, the leaves are evergreen, the ovary sharply trigonal, and the seeds practically spherical and distinct from other similar species. An altogether charming plant for the rock-garden but impatient of transplanting.

Crossed with tenax.

I. ensata. "The common iris of the Orient where it forms great mats, or tussocks, from the persistent fibrous remains of the leaves. Through these push yearly the new growths, the rather dull flowers coming close to the ground and soon overtopped and hidden by the leaves."*

The rhizomes are slender but so deep rooted that the plants are little affected by long periods of drought, or by soil. When growth begins in the spring the leaves appear of a pale yellow, later turning to grey-green, but both in foliage and flower it is variable, the more usual coloring being pale violet, or primrose. Of little garden value and seedlings do not bloom for 3-4 years.

I.foetidissima. Western and Southern Europe and Northern Africa. This species seems almost unknown in America, but is a common native in England and is recommended in France as an evergreen ground-cover even in shade. The flowers of dull brownish purple or pale greenish yellow are inconspicuous but the globular scarlet seeds remain attached to the pod and are distinctly showy. The plant is very slow of increase and no hybridization has been successful. The leaves when bruised emit a disagreeable smell, and the plant has little preference for lime or special care.

citrina, pale yellow, probably the same as aurea.

Var.aurea with clear yellow flowers has been listed, also a variegated variety.

I.foliosa. To quote from Mrs. Wilder's "Adventures in my Rock-garden". "It is the most truly blue of all irises and makes a lovely show, though the broad, large blossoms are borne well down among the slightly glaucous, flexuous leaves. It grows here (N. Y.) in the rock garden in a pocket of deep rich soil in partial shade and blooms early in June very profusely and for several weeks, maturing an abundance of seed".

There is a white form, very lovely, and crosses with fulva have given rise to fulvala, Dorothea K. Williamson and other fine hybrids. It has also been crossed with aurea (spuria).

I.forrestii. A plant from Western China, with pale yellow sibirica-like flowers and well-described as a dwarf wilsoni. The standards tend to be more erect than in wilsoni and the leaves are less glaucous, quite vivid on the upper surface. Height 12-18 in. Among the seedlings some show a clear lemon yellow of real charm.

I. fulva. Of a unique terra-cotta color, both standards and falls much of a size and drooping. This native of the lower Mississippi valley swamps attains a height of five feet but in England is much lower and seems to prefer rich warm and dry soil. In my garden it is rarely over 2 ft. and has proved more of a curiosity than of a decorative value. It is apparently hardy and as the pollen parent of Dorothea K. Williamson points the way to the development of a new and showy race.

fulvala violacea. blue-violet.

John Wister (fulva x aurea) a rather delicate blue-purple. 20 in.

Dorothea K. attains a height of four to five feet when well-grown,

with lush foliage and almost velvety purple blooms 7-8 inches across. It seeds freely and crosses surprisingly with other beardless irises.

I. gormani, n. sp. Rootstocks slender; base of old plants covered with dead leaves of previous seasons; stem slender, 1-flowered, 30-40 cm. high, each bearing two or three leaves; leaves pale green, linear, 2-4 mm wide, strongly veined, the earliest short, some of the later ones exceeding the stems; cauline-leaves scarious margined, the upper exceeding the stem; bracts three, 8-10 cm. long, scarious-margined, none exceeding the flower; flowers short peduncled, cream color to pale yellow; perianth tube above the ovary short, 4 mm. long; sepals ascending, spathulate-oblanceolate, not bearded or crested, thin, 3-3.5 cm. long; petals erect, spathulate-oblanceolate, 2-5 cm. long; capsule oblong, obtusely 3-angled, sharp beaked, 2-2.5 cm. long, straw color when mature; seeds globose, brown, the outer coat much wrinkled.

Scoggin Creek, east slope of Coast Mts., Washington Co., Oregon, M. W. Gorman, June 25 and August 13, 1922. Only about 5% of the plants produced fruit in 1922. The above description of a new variety is from the Proceedings of the Biological Society of Washington, Vol 37, page 91, Feb. 21, 1924.

I cannot judge as to the possible value or specific rank of this species. Ed.

I. graminea. This small but fragrant species is from Southern and Eastern Europe. "It is easily handled, growing anywhere and bearing the short stalks of red to blue-purple flowers half-hidden among the leaves. The perfume is very much like that of ripe apricots and is much enjoyed when the flowers are picked for table decorations. This iris like all of the apogons is very beautiful when picked and arranged in shallow bowls together with its foliage, all held in place by some one of the Japanese flower holders".*

This is one of the spuria group and blooms in late May. It is easily raised from seed but the seedlings vary much in foliage and all do not have the delicious perfume.

I. grant-duffi. A rare species from Palestine where it grows in rich marshy soil which is baked hard in summer, when the foliage dies completely away. The flowers, lilac veined on a yellowish ground, are rarely formed in England as the plant seems to require a well-limed heavy soil that will be quite dry for at least four months in summer. There are curious sharp bristles (the remains of withered leaves) about the rhizomes and after one season's growth seedlings have formed small bulb-like rootstocks with reticulated coats much like those of reticulata.

This and the nearly related aschersoni, melanosticha, and nasia are very rare, in fact I have heard of only a few plants in this country.

I. grisii. From Central China, closely related to ensata and not known in cultivation. Nearly white faintly veined with pale red-purple; 6-12 in.

I. hartwegi. From the foot hills of the Sierra Nevada and probably only a pale straw variety of I. tenax. It should always be grown from seed as it is difficult to transplant even in active growth. With its wiry stem and slender leaves it is rarely worthy of cultivation.

I. henryi. From Western Hupeh, a low growing iris close to minuta and not in cultivation.

I. hexagona. From the swamps of the South Eastern United States and hardy, tho less effective when grown in a rich warm soil in the north. It is a "magnificent iris with broad foliage and stems over 3 ft.

*From "Iris Notes" by B. Y. Morrison in Vol. 2, No. 3, Journal of the International Garden Club.

Iris graminea **Photo by E. L. Crandall**

high" carrying large pale lilac flowers of a form similar to Dorothea K. Williamson as illustrated. It is a strong grower and varies considerably when grown from seed.

Lamancei is but another name for I.foliosa and together with fulva these must form the basis for an iris collection in Florida and the Southern States. Among hybrid seedlings great variation in color and height may be expected and we may look for named varieties within a short period of years.

I.humilis. From Translyvania in calacareous clay soil and not in cultivation and for once we seem to loose nothing. It is dull-coloured and almost stemless.

I.kaempferi. The type is rarely found in catalogs but comes to light among seedlings and in its vivid red-purple proves most effective. The standards are erect and arching, rather small, the falls smoothly drooping with a yellow ridge, the leaves with a conspicuous central ridge. This and the red-purple tones distinguish kaempferi from laevigata. The following reprint from the Bulletin of the Brooklyn Botanic Garden, October, 1920, suggests the value of the Japanese Irises in the Garden. It is not at all difficult to raise the largest forms from seed tho a percentage of course always reverts to the type.

JAPANESE IRISES FOR THE GARDEN

These have probably been developed slowly through centuries of selection in China and Japan to their present size, but did not flower in Europe until Siebold's importation became established at Ghent in 1857. Almost immediately, however, Japanese irises won popularity, were imported in large quantities, sometimes under Japanese names, more often in mixture, and during the sixties and seventies we find firms listing them in great variety. Unfortunately many firms used names to suit themselves and the practise has continued to a certain extent up to the present day with a consequent confusion in nomenclature. It is in an attempt to straighten out this confusion that we are fostering a trial collection at the Brooklyn Botanic Garden. At least five hundred names have been used in the catalogs; probably one hundred and fifty would easily cover the distinct varieties now in cultivation, and the task ahead is no sinecure.

The Japanese irises of our gardens have reached a higher state of development than any of their kin; we may have them single or so double that even the style-branches seem to have been metamorphosed into broad spreading falls, and from the red purple of the type the range of colors has been widely extended though in none is there a vestige of yellow as a body color. The pure white Gold Bound in quite commonly listed, some are of solid red or blue purple in varying shades and tints, some are flecked with white or light tones upon the darker ground while others are suffused or veined, or splotched with the darker hues. All have a heavy substance, one seems actually to feel the thickness of the petals, but some are waxy or show a silky sheen on the surface, and the smooth carriage of the segments may be modified by a broad waving or even a sort of crimping or ruffling. The colors are rarely alive, as an artist might state it, but the expanse of color gives great garden value. We hear tales of individual blooms a foot or more across, and when one realizes that the flowers are carried above the sword-shaped leaves practically in one plane, it is perhaps possible to picture what a sheet of color a field of these irises may present.

But let us leave the flower itself and see how we can use the plant in the garden and under what conditions it will thrive. The beardless irises all appreciate moisture, particularly through the flowering season. In a cold climate they will not endure submergence during the winter, but a few inches of standing or flowing water, before, during and for a short spell after the blossoming time, is well worth planning for, especially in the case of the Japanese. In Japan it is so planned, the edges of the beds being often protected by a woven wattle of bamboo, and between the floodings rich manure is well worked into the soil. Fortunately we can grow them in our gardens with but a tithe of such care, but it is well to keep in mind their preferences and give them

moisture and food at least. As to transplanting, either immediately after the blossom fades or before growth starts in the spring is recommended.

In the garden proper I like to use these irises with some consideration of their fine foliage throughout the season. The bold uprightness of their leaves, their depth of green, and density of growth all merit careful placing. Just as a peony plant, or a line of peonies, may be used as an accent or as a backbone to a garden bed, so may a thriving iris plant be used to even greater advantage as its verticality gives an added meaning to the composition. In time of bloom these irises conflict with the Delphiniums and I must confess that I do not like a haphazard combination of their hues. Some Delphiniums go well with some of the iris colors, but their close affinity in the spectrum calls for a nice discrimination. In a way, their very size and solidity of color are not adapted to a happy color scheme, for it must be a peculiarly loud perennial that will be noted in the same glance. The contrast in growth of irises and astilbes is most pleasing; as a foil for montbrietias and gladioli they are ideal; the graceful Japanese anemones have such similar cultural tastes that they may be used to advantage for succession; the late blooming Hemerocallis luteola pallens suggests a yellow touch and even the common Coreopsis might have a place in the design. Such suggestions are, however, for the individual gardener to work out; my garden is poor and dry, and the Japanese irises find a position that they like in a moist spot by the pond. There I carry on a judicious form of naturalizing. In early spring there are edgings of primulas, violas, and for-get-me-nots; Siberian irises carry along the bloom, and when the Japs have gone nature holds full sway. It becomes a tangle of the wild things, Joe-Pye-Weed, asters, golden-rod, and Eupatorium fight together, and at the very water's edge are the white spikes of arrowhead and the red of cardinal flowers. Such is my site for Japanese irises, but I should like a more watery place with quiet pools, winding sluggish channels, perhaps a bit of cascade, and all so constructed that I might flood the beds at will and walk upon high paths or moon-arched bridges from which one might overlook it all. How one can dream in and about gardens!

I have purposely refrained from a recommendation of named varieties; almost every catalog offers a different selection and fundamentally color is a matter of personal taste. You will find elsewhere no such variation of good, bad, and indifferent as is the case among the bearded irises. Unless you are working out a particular scheme in your garden proper, use them in masses at the edge of the wild, and paint broadly, with but a few colors upon your palette.

If you are not familiar with these irises and their possibilities you may add a wealth of color to your garden for late June or early July, and we hope that in years to come the Brooklyn Botanic Garden will show them to you at their best. It should prove a Mecca for flower lovers, particularly at this season.

I. kerneriana. A little known species from Asia Minor with yellow flowers wholly hidden by light-green sheaving leaves. Spuria group; of apparently no garden value.

I. laevigata. Quite distinct from kaempferi which is often listed as laevigata, a species with the "most magnificent blue flowers of any iris". The type is rare and as I have bloomed it in my garden a far less thrifty grower than kaempferi, the unridged leaves are but 18 inches long and the flowers are smaller.

Alba, white.

Colchesterensis, A. M. R. H. S. 1910, deep blue, shaded purple and edged white.

Plena, a 6 petaled form of Colchesterensis.
Rose Queen (Perry) reported as soft rose, 2 ft.
Semperflorens. listed in Japan as everblooming.
var.albopurpurea is a quasi-albino form which breeds true from seed, the falls mottled and spotted with blue. Mr. Morrison mentions that "in Japan it is commonly grown in the temple gardens on the margins of ponds in very shallow water that can be drained off in winter. There are white forms, whites with a flush of lavender on the styles, albopurpurea, and various reddish purple forms that are most unattractive".

I. longipetala. From the sea-coast of California and like the closely related missouriensis and montana are rather easy to establish in fairly heavy soil. The standards are rather divergent, the falls, a slightly darker pale lavender, spreading and drooping. "The segments are narrow and have a characteristic twist that gives an airy poise".* Owing to the fall growth, the leaves are evergreen in the south but very apt to winter-kill in the north. Height about 2 ft; charming.

Superba, porcelain blue.

I. macrosiphon. A species of California and Oregon distinguished by its short stem and long perianth tube, a dwarf with flowers varying from white through pale yellow to lilac and veined red-purple. Like others from this region it must be raised from seed and not transplanted.

I. minuta. A rare but charming companion for I. gracilipes with slender leaves that become some 12 inches long after the fragile yellow flowers have passed. The plant blooms in early May and is of value only for the rock-garden. Curiously enough it is known only as a Japanese garden plant and in autumn nodules appear upon the roots.

I. missouriensis from the Great Basin is practically a more slender longipetala, the foliage not evergreen. Mr. Andrews lists Snow Bird and Blue Bird as white and dark blue selected forms.

I. montana from Montana to Arizona is, for practical purposes, a variation on longipetala with lavender flowers. The variety Tollong (Foster) is a cross between montana and longipetala and personally I think further study might prove the presence of one species rather than three.

I. orientalis crosses freely with I. sibirica and from a botanical view point is closely related. In the garden it is distinguished by stems rarely overtopping the 18 inch broader leaves and by the larger flowers with broader falls. From seed there is considerable variation in form and the red-purple flushing of the spathes and the base of the leaves, and tho the albino Snow Queen breeds true as to color there are many seedlings with too narrow segments. In garden effect the type is much less showy than sibirica and fuller consideration of the hybrids will be made under that head. Good forms of Snow Queen are thoroughly worth growing in all but the driest of gardens.

I. prismatica, a native of the Eastern Coastal marshes with very grassy foliage and such wide creeping rhizomes that it is difficult to weed and keep track of. The solid stems are curiously forked and the slender flowers are veined on white, the veins some shade of lavender. It is easily grown in a fairly moist situation but seems most at home when naturalized in a meadow. Height to 2 ft.

I. pseudacorus, a European native, has become naturalized in many parts of the older portions of the States and possesses many affinities with our native versicolor. The foliage is taller and is apt to overtop the metallic yellow flowers and the plant will thrive even in a dry site though it is almost an aquatic. Bastardi has no deeper yellow blotch on the blade of the falls, while the so-called acoriformis has the deep

blotch and a varying amount of brown or purple reticulation on the haft. There is also a form with variegated leaves and several with ivory or primrose flowers. The plants seed freely and though the deep blotch is a Mendelian dominant, the pale forms breed true as to color though many may be small and poor in form. The seeds when ripe are said to be a good substitute for coffee but must be well roasted before eating.

I. pseudacorus is to be recommended for its bold foliage and the opportunities it offers for extended naturalizing.

Mr. Morrison writes "When in Japan I found small yellow and ivory colored irises growing in pots in a tiny nursery in an unimportant village on the west coast. Their size deceived me with the hope that I might have chanced upon an unfamiliar species or at least variety. But brought to this country and planted where neither soil nor moisture were limited they became only good forms of I.pseudacorus.

After blooming time go over the plants and cut off all the stalks to prevent the maturing of seed for every seed will grow and soon produce a most annoying lawn of small seedlings throughout the garden. If planted in the wild this may not matter but in the garden it is a nuisance equalled only by the weeds themselves. Although it is an iris for bog and waterside conditions it will grow tolerably well though to a lesser size in ordinary garden soil and being very tenacious of life will flower even in hot dry soils. "But whatever place we may have there should be some few plants to provide cut flowers which make as delightful an arrangement as one could desire, in baskets of split bamboo or arranged with Japanese leads in deep, broad-mouthed bowls of bronze or blue".*

I. purdyi is closely related to bracteata. It is a dwarf with pale straw yellow flowers veined with brown purple, delicate and rather charming. Seed sets in abundance if the flowers are artificially pollinated.

I. rossi is not known in cultivation but seems to resemble I. ruthenica.

I. ruthenica extends from Hungary to Eastern China and must be grown from seed as the very slender rhizomes do not bear transplanting to advantage. It is a delightful little plant for a sunny moist spot in the rock garden where its slender leaves make a glossy mat. The standards are deep purple violet, the falls conspicuously veined on white and Mrs. Wilder may well speak of its "small loveliness". I do not know where in America, or elsewhere in fact, seed may be obtained.

I. setosa varies greatly in color, but through Siberia and Alaska to Labrador it has little garden value as the standards are reduced to mere bristles and the flowers are usually a rather dull red-purple. Local forms vary in stature and come true from seed, the dwarfs are better garden plants and though no white form is known in cultivation Prof. Fernald has mentioned finding both a white and a variegated leaved colony on the shores of the gulf of St. Lawrence, and that it is never found more than 30 yds. from the shore nor in saline soil.

I. sibirica. With the possible exception of I.kaempferi this is the most valuable of the Beardless irises for the hardy garden. It is characterized by erect hollow slender stems carrying the many small flowers well above the slender grassy leaves. It is a native of Central Europe and Russia and crosses freely with orientalis, delavayi, clarkei, and probably with the less well-known Chinese species of the Sibirica group. There are many garden forms.

acuta a dwarf form with rigid leaves and pale flowers.
alba, white, haft reticulated brown and purple.

alba grandiflora, but slightly larger than the albino form.

alba maxima, large white with blue and olive reticulations.

atropurpurea (1876) deep toned but apparently out of cultivation.

Baxteri. orientalis form to 4 ft. dark flowers overtopping the leaves.

Blush-White (Perry) faint lilac flush.

Blue King, an improved form of the so-called orientalis sanguinea collected by Peter Barr in Japan.

Butterfly (Cleveland 1920) Sibirica type to 5 ft., clear porcelain blue; lovely.

Coerulea (Barr) bright blue, 42 in.

Corea, orientalis type, 2 ft., dark.

Compacta, dwarf, pale blue.

Distinction, Sib. pale violet, 42 in.

Duchess of York (Perry) Or., as dark as Emperor with yellowish-brown base to falls; 3 ft.

Duke of Norfolk, Or. purple and lilac, 3 ft.

Emperor the finest deep violet, large, to 4 ft. Col. in Japan by E. H. Wilson. 50% true from seed.

flexuosa, a small rather poor white of Sibirica type; 2 ft.

Fl. pl., a dwarf, double, dark blue form, reported as unattractive.

George Wallace (1894) tall purple bicolor.

Grandis, to 5 ft. deep tone of sibirica.

Haemotophylla, (1879) Or., close to type.

Lactea (1876) Sib. small milk-white, rather attractive, 3 ft.

Lady French and Lady Godiva are apparently obsolete.

Lady Northcliffe (Perry) an improved orientalis, 3 ft.

Maurice Bevan, Mrs. Logan, Mrs. Perry, all Perry seedlings; descriptions not available.

Melpomene, deep purple orientalis; good.

Mrs. Rowe (Perry) silvery white flushed lilac, 30 in.

Mrs. Sanders (Perry 1912) dark blue, 3 ft.

Nora Distin (Per.) Or. falls edged white, 30 in.

Nurse Cavell (Per.) orientalis bicolor, 3 ft.

Peggy Perry. (Perry 1912) type of Perry's Blue, darker and very handsome. 3 ft.

Perry's Blue (Perry 1912) clear deep blue sibirica, very handsome, 3 ft.

Peter Pan (Per.) bicolor of orientalis form.

Pigmy (Per.) dark violet, 18 in.

Polaki dwarf silvery white described as an Orientalis form; of little value.

Skylark (Cleveland 1924) Sib. tall sky blue, the falls with narrow edge of white; good.

Snow Queen. the white form of orientalis that breeds true from seed, the large flowered seedlings are very handsome with their yellowish hafts.

Sunnybrook (Cleveland, 1920) (Blue King x Snow Queen) large greyish blue; 30 in.

Superba, Or. to 4 ft, unusual height of foliage.

Thalia (1881) Sib. palest rosy-lilac.

Thelma (Perry) a soft china blue of Perry's Blue type.

True Blue (Fryer 1919) a selected form of orientalis.

Wasioja (Fryer) a selected seedling of orientalis.

Chrysobirica should be mentioned as a cross between chrysographes and sibirica the color varying from blue to deep purple, the haft with white or yellow ground.

I. sintenisi from Turkey and Asia Minor might be described as a slender spuria and is of slight garden value. It is a deep blue-purple in color and grows about 12 inches high.

I. soongarica from Southern Asia is also extremely rare in cultivation and seems to be a connecting link between the Spuria and Tenuifolia groups. It grows about 15 inches high and the flower suggests the Spanish iris in poise and appearance.

I. spuria with its many varieties from the shores of the Mediterranean or Southern Asia proves a most valuable group of garden irises that bloom after the bearded irises. They are easily grown but prefer moisture and heavy feeding before flowering and are slow to become established. The rhizomes should not be allowed to dry out before replanting. The following varietal names are often given specific rank. All are tall (over 3 ft.) with stiff rigid leaves, the flowers on tall stems.

var.alba, white; lilacina, lavender; notha, more robust than the type.

halophylla (guldenstadtiana) is a thrifty grower with thin spidery flowers varying in color from white to dull yellow or gray purple.

ochroleuca is yellow and white and there are a number of named varieties (see Check List) altho few are in the trade.

Canari, canari yellow to 4 ft. Vilmorin has introduced a double white with yellow blotches: Gigantea, a so-called large form.

monneiri has clear lemon yellow flowers, the blade of the falls orbicular.

Monaurea (aurea x monneiri) a deeper yellow self.

Monspur (Foster). Hybrids between spuria and monneiri varying in their shades of blue-purple. Mrs. A. W. Tait, soft porcelain blue; Dorothy Foster, soft violet and light blue; Premier, rich violet. Cambridge Blue (Barr 1910); Celestial, China blue; subbarbata, yellow. A. J. Balfour, large rich violet with yellow throat; to 5 ft. Juno, lilac-blue, the lighter falls with a golden blotch; 4 ft. Lord Wolseley, standards purple, falls blotched bronze.

ochraurea. creamy-yellow.

aurea. deep yellow, the segments frilled at the edge, the blade of the fall oblong.

Shelford Giant. (ochroleuca x aurea) cream with a broad orange blotch on the falls.

I.tenax. Washington and Oregon. Easily grown from seed and not impossible to transplant when in active growth. "There is a considerable range of color from the deep reds to almost pure white but always with characteristic white markings below the tiny yellow blotch under the style-branch."* One wonders if the following extract from the Douglas' Journal refers to this dainty iris.

Oct. 22nd, 1826. The Umpqua Valley. "Last spring Baptist Mackay brought me from this country a snare made from a grass as he said which from its texture I thought would prove to be a species of Helonias. I now find it to be a small species of iris found abundantly on the low moist rich grounds. The snare is used in taking the elk and Long and Black-tailed Deer, and in point of strength will hold the strongest bullock and it not thicker than the little finger."

purpurea. A. M. R. H. S. 1923. see Illustration.

I. tenuifolia. Southern Asia. A little known species, blue-purple, short stemmed.

I. tenuis a species found in dense mats in the fir forests near the Clackamas river in Oregon is not known in cultivation and should be grown from seed.

I. tripetala from the South Eastern States blooms with the last of the Japanese irises. "It is a curious plant with a straggling open growth and very slender leaves. The flower stalks scarcely overtop the

Iris tenax purpurea. (Dykes). A. M. R. H. S. From "The Garden"

leaves and bear a terminal head of pale lavender flowers flushed with a deep color".* A native of swamps and pine barrens it is like I. setosa in its bristle-like standards.

I.unguicularis (stylosa) This species from the shores of the Mediterranean is not hardy in the north, or at least the buds are frozen by the winter cold. It is a leafy plant and the white to purple flowers are often half-hidden. The styles appear to be covered with gold dust.

alba, white, rare; marginata pale with white margins; purpurea, rich purple; pavonia, flowers spotted at the throat; grandiflora, violet purple and larger than the type.

var. cretensis tends to be larger than the type.

var.lazica is conspicuously veined dark purple.

var. speciosa is later (March) blooming and the reddish purple flowers have the fragrance of the Sweet Pea.

Though found in a fertile clay, in more northern gardens they prefer a poor gritty soil and should be well-watered and fertilized during the spring growing season and given a dry resting period during the summer. Where the flowers are not injured by the winter frosts unguicularis is indispensable either for garden effect or as a cut-flower. Seedlings flower in the third or fourth year and plants do not like to be disturbed though they often thrive under pot culture.

I.verna "from the mountains of the south is a delightful small iris which shows its small vivid blue-lavender flowers before the evergreen leaves have pushed to their full growth. The flowers are marked by a small but bright orange blotch and by a delightful but not strong perfume".* They are practically stemless and it is ideal for the rock garden though care must be taken to give it an acid soil and a modicum of shade. It has a bad reputation but is well-worth growing and one of my successes has been on an apparently hopeless ledge formed by a big protruding larch root in the rock garden. The foliage is evergreen and leathery, the flower reminds one of I. pumila but is beardless and about the size of cristata.

I.versicolor the native Flag of the Eastern States is very variable and I suspect that when Dr. Small of the N. Y. Botanical Garden completes his monograph on American Irises it will be sub-divided into a number of species. The typical form is pale blue purple and in many respects very similar to the yellow pseudacorus, its European counterpart. It is a water loving species but will thrive in good garden soil though I think few forms are worthy of such a position, as the flowers are often hidden among the leaves.

A white variety has been rumoured and there are many forms of varying depth of color and also in size and height above the foliage. It self-fertilizes freely and kermesina at least comes practically true from seed.

Blue Beauty (Barr) soft blue.
Columnae. deep purple.
caroliniana has "clear blue-lilac veining on an almost white ground and a yellow blotch confined to a definite area as in the Japenese irises".

Fosteri has rather pointed falls the color deepening at the tips.
kermesina is rather dwarf, the small flowers a deep red-purple.
Pulchella, reddish lilac.
Rosea, a rather pale form of Kermesina with small flowers.
Royal purple (Barr) violet purple.

I. wilsoni, one of the Chinese sibiricas, is pale yellow and generally larger than forresti with the standards carried more horizontally. It is to be expected that hybrids with sibirica will be developed and add new colors to the garden border but with me the type has been disappointing partly because the flowers are pale in tone and partly because they do not stand well above the graceful leaves. I doubt also if either wilsoni or chrysographes will stand dry garden conditions. A purple form has been listed.

In closing I wish to emphasize two points, one that all these irises are easily raised from seeds and that only through traveling friends are seeds of many of these species obtainable and second, that the next few years are going to bring a great increase in appreciation and some real novelties of fulvala, sibirica, and versicolor parentage.

Iris Hybrids

W. R. Dykes

Note. Mr. Dykes has been kind enough to translate his article in the French Report.

It is many years now since I undertook the revision of the genus Iris from the botanical as well as from the horticultural point of view. First of all I tried to raise from seed all the botanical species; then I made crosses between them in order to test the truth or falsity of the ideas which I had conceived concerning the relationship between the species. This paper is concerned with the results of these crosses.

We must first obtain a general idea of the main divisions which nature has made in the genus. There are bulbous species and rhizomatous species. Between plants of these two sections there are no hybrids, although many attempts have been made to produce them. For example, attempts have been made to combine a bulbous species and a rhizomatous species, which both grow together in the Spanish peninsular, that is to say, **I.Xiphium** and **I.spuria,** but hitherto without success. However, there is a striking resemblance between the flowers of these two species and it must be noticed that they grow in the same countries, in Spain and even in France, for **I.Xiphium** is still to be found in the neighborhood of Béziers and **I.spuria** near the mouth of the Hérault.

The rhizomatous species are divided into bearded species **(Pogoniris),** into beardless species **(Apogon),** and into crested species **(Evansia).** Between the **Pogoniris** and the **Apogon** no one has ever succeeded in making hybrids. I remember asking the late Sir Michael Foster if he had ever succeeded in crossing these two sections of the genus. He replied that he had tried to fertilize an **I.germanica** with the pollen of an **I.spuria.** From the few seeds which he thought he had obtained from this cross, he had raised a single plant which he showed me. To judge by the leaves, it was an **I.germanica** and what particularly interested Foster was that the plant had never flowered. Consequently, he was inclined to believe that it was a hybrid. "Otherwise," said he, "this plant must have flowered, for all the **Pogoniris** flower in this garden". We do not know what became of this plant after Foster's death. At any rate, the mystery of its failure to flower was never solved.

Between bearded Irises and crested Irises there exists at least one hybrid. Before I tried, Foster and M. Denis had already tried without success. I did not expect to succeed, but one day it occurred to me to put pollen of **I.tectorum** on the stigma of the variety **Loppio** of **I.Cengialti.** From this cross I obtained two seeds which gave me two plants. The most remarkable thing is that the pollen of **I.tectorum** gave the hybrid its flat outline, while the seed parent gave the hybrid its scarious spathes and its beard, which springs from the top of a rudimentary crest. This hybrid is, unfortunately, entirely sterile, for I have made repeated attempts to fertilize it both with its own pollen and with that of its parent.

Among the bearded species there are at least three main sections, **Pogoniris, Regelia** and **Oncocyclus.** There is no difficulty in making hybrids between them. The **Regelia** and the **Oncocyclus** species have given us, thanks to Sir Michael Foster and to Mr. Hoog of the firm of C. G. Van Tubergen, Junr., of Haarlem, the **Regelio-cyclus** hybrids, among which we get the large flowers and the colour scheme of the **Oncocyclus** united to the floriferous habit of the **Regelia.** It is to Foster, too, that we owe **Ibpall (iberica x pallida), I.Parpall (paradoxa x**

Iris Dorothea K. Williamson (fulva x foliosa) Photo by E. L. Crandall

pallida), I.Ibvar (iberica x variegata), I.Parvar (paradoxa x variegata), I.Lupceng (Lupina (Sari) x Clengialti), etc. In all these cases the hybrids are practically half way between the two parents. They are easier to grow than the **Oncocyclus** species and yet they need more care than the **Pogoniris**. They must be transplanted at least every three years and they must have a soil containing lime.

These hybrids are all sterile except in rare cases;* in England they have never set seed, apparently; but a few years ago M. Denis sent me from Balaruc a few seeds of a **Pogoniris x Oncocyclus Cross.** From them I raised a single plant, which is quite remarkable. It is a dark

purple **germanica** with the brownish purple signal patch of an **Oncocyclus.** This plant grows as easily as a **Pogoniris** and flowers abundantly.

Between the **Regelias** and the **Pogoniris** it is likewise not difficult to make hybrids. We can combine the yellow and the purple of **I. chamaeiris** with the prominent veins and the almost black beard of **I.Korolkowi.** The same can be done with **I.stolonifera;** but all the hybrids of this latter species which I have hitherto seen are ugly. There is always a mixture of colors which produces a very unpleasant effect.

As for the bearded Irises of our gardens, they are hybrids for the most part. The true **I.pumila** is as rare in our gardens as the name is common in catalogues. In the wild state, in Austria, Hungary and Southern Russia, there are numerous varieties of different colours. Even **I.pumila coerulea** must be a garden variety, for it scarcely ever sets seed and the flowers are not quite of the same shape as those of the wild plants. In **I.pumila,** of course, there is no stem, whereas the perianth tube above the ovary is relatively long. In **I.chamaeiris** the stem is at least as long as the tube and usually much longer. These two species can be combined and form a sterile hybrid with the long tube, characteristic ovary and spathes of **I.pumila** on the stem of an **I.chamaeiris.**

In my opinion the commonest Iris of all, **I.germanica,** is nothing but a hybrid. It rarely sets seed and the few plants that have been raised from its seeds are all dwarf plants very like **I.aphylla.** This species, which is widely distributed in Central Europe, is remarkable in having a stem which branches below the middle and even at the ground line and this character is found in the seedlings of **I.germanica.** Moreover, all the species of Central Europe, **aphylla, variegata, pallida, sibirica, pumila,** lose their leaves in autumn and remain dormant until the spring. I.germanica, on the contrary, begins to grow when the autumn rains come and it often happens that clumps do not flower because the buds freeze before they emerge from the leaves; a catastrophe which never happens among the Irises of Central Europe. The majority of the bearded Irises of our gardens come, not from **I.germanica,** but from the crossing of **I.variegata** with **I.pallida.** These two species grow together in the wild state in the neighborhood of Bozen in the Tyrol and also in the Velebit Mountains in Croatia. In both cases there occur among the plants of the two species hybrids with a smoky tinge of color in the flowers, that is to say, plants which were formerly known as **squalens, sambucina, etc.** This color scheme results from the struggle between the purple of **pallida** and the yellow of **variegata.** The so-called **I.amoena** is only a **variegata** with a white ground instead of yellow, and so is **I.leucographa,** which has been found in a wild state in Hungary.

This is, in my opinion, the origin of the old garden hybrids. It is several years ago now since hybridists began to use **I.trojana** and other tall species coming from the East or rather, the Levant. For instance, M. Denis used **I.Ricardi (-mesopotamica)** to make many of his fine hybrids, while **Isoline** is obviously the result of a cross of **I.trojana.**

In every case the yellow coloring comes from **I.variegata** with the exception of a few dwarf early flowering plants which are hybrids of **I.chamaeiris. I.lutescens** is only a variety of this species, while **I.flavescens** is descended from **I.variegata** and has been long confused with **I.imbricata,** a very distinct plant from the Caucasus which, so far, has not given us any hybrids.

If we examine closely the spathes of the garden varieties we find that they are, at flowering time, entirely green or herbaceous in **I.variegata, I.aphylla** and **I.trojana;** entirely scarious in **I.pallida** and half

scarious in **I.germanica** and in the majority of the well known varieties. This is further evidence of the hybrid origin of **I.germanica.**

Among the **Apogon** Irises there are numerous groups of plants more or less closely related to one another and within these groups it is not difficult to make hybrids. Thus it is possible to combine **I.sibirica,** which is a European species, with its Asiatic relative **I.orientalis,** Thunberg. From the former the plant derives its tall stem which rises well above the leaves, while the latter gives the big flowers with the broad falls. Both these species have albino forms and, consequently, in order to obtain sky-blue flowers, we have only to combine the deep blue of the wild plant with the white of an albino. Some of these hybrids are fertile and set seed abundantly; but some are sterile.

Nearly twenty years ago there were introduced from China two Irises with yellow flowers belonging to the **sibirica** group, **I.Wilsoni** and **I.Forrestii.** The former can easily be combined with **I.sibirica** and the result of the cross is a blue **I.sibirica** with a yellow ground which is entirely sterile. **I.chrysographes** is a handsome Chinese species with dark purple flowers veined with gold. Sometimes there is only a single line of gold in the centre of the falls, but usually there is an area of some size covered by veins of gold. Reciprocal crosses between **I.chrysographes** and **I.Forrestii** give us two hybrids which are almost identical and in which this gold vein area is much larger and more pronounced. A remarkable point is that the hybrids between these Chinese species are fertile. They set seed easily and give a whole series of different and interesting forms. Moreover, **I.chrysographes** and the Himalayan **I.Clarkei** can be combined with the Californian species such as **I.Douglasiana** and **I.tenax.** These hybrids are very handsome and floriferous; but they are sterile. I have also crossed **I.Wilsoni** and **I.tenax** and the hybrid is extraordinarily floriferous but quite sterile. The flowers are scarcely beautiful; in fact they are ugly, of a dark blue speckled with pale blue.

Flowers similarly coloured are to be found on a hybrid between **I.pseudacorus** and its American cousin, **I.versicolor,** and between **I. spuria** and **I.ochroleuca.** The latter cross was made by Foster, who called the result **I.Monspur,** for **I.Monnieri** is only a garden variety of **I.ochroleuca** or, perhaps, a cross between that species and **I.aurea** from Kashmir.

The **Hexagona** group only contains three species: **I.hexagona, I.foliosa** and **I.fulva.** I.foliosa is a dwarf plant with the large flowers of **I.hexagona** and one day it occurred to me to try to give it the tall stem and the terra-cotta colour of **I.fulva.** The cross succeeded and **I.fulvala** is a fine, vigorous hybrid with velvety purple flowers, which is, moreover, fertile. From seeds of it I have raised varieties with flowers of a deep buff colour—a somewhat unexpected result.

As for Japanese Irises, I am convinced that they contain nothing but **I.Kaempferi.** This is an entirely distinct species from **I.laevigata.** Its leaves have a raised midrib, while those of **I.laevigata** are smooth. The seeds of the latter are almost identical with those of **I.pseudacorus** and have a smooth, shiny skin. Those of **I.Kaempferi** are irregularly shaped and flattened. Nothing is known of the means by which the Japanese succeeded in modifying the wild plant and in obtaining from it varieties with double flowers, blotched and veined with all colours. We only know that they have done the same with the Chrysanthemum and with the flowering Cherries and Plums which ornament their gardens in spring. They have even done the same with **I.laevigata;** for

*A number of hybrids have been obtained by the late Mr. Mohr. (see Bulletin 9) Ed.

there are white varieties spotted with purple **(I.alboporpurea)** and others with double flowers of the same colour scheme.

Bulbous species lend themselves to hybridisation, although the plants which result from them are usually sterile. The true **I.Xiphium** is easily distinguished from its relatives by its short funnel-shaped tube. The others have a slender linear tube, for example **I.tingitana, I.filifolia, I.juncea,** etc. When these species are crossed with **I.Xiphium** the length of their tube is reduced by half and we find examples of this shortened tube in some of the so-called Dutch Irises. These are hybrids between **I.Tingitana** x **I.Xiphium,** while the majority of them have only the short funnel-shaped tube and are garden varieties of **I.Xiphium praecox.** This is an early flowering, large flowered form of the species and comes from the south of Spain.

I.Boissieri is a bearded species, of which the beard is composed of long yellow hairs. The length of the hairs can be reduced by half by crossing **I.Boissieri** with **I.Xiphium** or with **I.tingitana,** both of which are beardless.

Among the Irises of the **Juno** section, there are species with spherical seeds, others with cubical seeds and others, again, whose seeds have a white attachment. Between the members of these three sections, there are no hybrids, while the members of the first two classes are easily hybridised among themselves. **I.persica** and **I.sindjarensis** belong to the first class and have produced such hybrids as **I.pursind, I.sindpur,** etc. **I.bucharica, I.orchioides** and **I.warleyensis** have cubical seeds and we can obtain plants with large yellow flowers by combining **I.bucharica** and **I.orchioides.** Hybrids between **I.bucharica** and **I.warleyensis** have flowers that are yellow or greenish with a green or brown edge. Of the third section, we have in cultivation only **I.Rosenbachiana** with yellow pollen and probably another closely related species of which the pollen is white. These two species give fertile hybrids when crossed together.

In the **Reticulata** section, there are not many hybrids. **I.reticulata,** as is well known, has quadrangular leaves, while those of **I.Bakeriana** are roughly cylindrical with eight parallel ribs. By combining these two species, hybrids can be obtained of great beauty, very richly coloured and having leaves with six ribs, a compromise between the four of **I.reticulata** and the eight of **I.Bakeriana.**

In conclusion, we may, perhaps, make the following generalizations:

(1) The main sections of the genus, **Apogon, Pegoniris, Juno, Xiphium,** etc, will not hybridise together, though the **Evansias** can be crossed with **Pogoniris.**

(2) All species of the **Pogoniris** section can be crossed together. For example, **I.trojana** can be crossed with pollen of **I.chamaeiris.** I actually succeeded in getting this cross when an odd flower of **I.chamaeiris** appeared in June, as sometimes happens when a number of plants are grown.

(3) Hybrids from two species, which are closely allied, are often fertile. For example, those between the members of the Chinese group of **sibirica** species and **I.fulvala.**

(4) Hybrids resulting from a cross between widely separated species are always sterile.

(5) When hybrids are obtained between very distinct species, their characters are roughly half way between those of the two parents. There is no Mendelian dominance and it is impossible to raise further generations because these hybrids remain sterile.

March 7th, 1924.

Iris Sibirica and its Relatives

W. R. Dykes

Note.—From The Garden (English), July 23, 1921.

That the plant which we now know as Iris sibirica should have received this name is doubtless due to some confusion among the early botanical authorities, for there is little doubt that the plant is really a native of Europe, throughout the centre of which it occurs, from near the French coast on the Bay of Biscay, across the Rhine to Bavaria, Switzerland and Russia. The first undoubted description of it is found in Clusius' "History of Pannonian Plants", and it was on this description, as quoted by Bauhin, that Clusius based his account. The characteristics of the species are the tall, hollow stems, which bear the flowers high above the leaves, the small scarious spathes and the short, broad, rounded capsules containing large flat seeds. No plant with these characteristics seems to be known in Northern Asia, though it is not impossible that it may exist in the Altai region, where one or two other Hungarian Irises are also known to occur. The Asiatic species is I. orientalis, and is distinguished by its relatively shorter stem, which does not raise the flowers much above the leaves, by the herbaceous and often reddish spathes and by the longer and more acutely angled capsules, which contain small cubical seeds. Its home is east of Lake Baikal and extends to Manchuria, Korea and Japan. The well known Snow Queen is an albino form of this species, but the distinction between sibirica and orientalis has almost become obliterated in our gardens, where the best forms are often hybrids between the two, combining the large flowers of orientalis with the tall stems of sibirica. Each species has a white form and though these white forms breed true when self fertilised, all shades of light blue and even pale greyish mauve can be obtained by crossing white and purple forms.

If we take the hollow stem as being characteristic of all the species of the sibirica group, then, with the exception of the two plants we have already described, the home of the group is in South-western China, from which come two yellow species—I. Wilsoni and I. Forrestii. I chrysographes and I. Delavayi. I. Forrestii is a plant found on the open mountain pastures in Northwest Yunnan and sends up a number of slender stems to a height of about 18 ins. or 2 ft. above the narrow glossy foliage which serves as a pleasing background to the delicate, pale-yellow flowers. I. Wilsoni comes from Western Hupeh and Shensi and is a sturdier plant than I. Forrestii, though the yellow flowers are hardly so pleasing because they are veined with faint purple veins.

The most recently discovered member of the group is I. chrysographes, which, in its best form, well deserves its name, for there is a conspicuous network of gold lines on the blade of the falls. The color is of the richest deep red purple and the standards spread outwards to give the flower a most graceful outline. I. chrysographes varies a good deal from seed, and in some forms the gold markings are reduced to a single yellow streak down the centre of the blade. The remaining species of the group is I. Delavayi, which deserves to be far more widely grown than it usually is. It is essentially a plant for the waterside or for the bog garden, where its stems will reach to a height of quite 5 ft. and where it will flower freely in a sunny position. Some years ago there seemed to be in cultivation in this country only one variety of this Iris, a dark red-purple form with a conspicuous white blotch on the falls. A few years ago, however, I received some seeds from Western China which have produced a number of colour forms. The flowers of each individual plant are of a different shade of blue or red-purple

Iris chrysographes **Photo by E. L. Crandall**

and the amount of white veining and the number of white blotches vary in each example.

The other species which have been included in the sibirica group are I. Bulleyana from Western China, which seems to be of hybrid origin, since it does not breed true from seed. Its parents, however, are unknown and there is no suggestion as to the species which could have given rise to it. The Himalayan representative of this group is I. Clarkei, but it is distinguished from all others by its solid stem. The

original specimens came from the ridge of Tonglo, some ten miles from Darjeeling, where there are a number of colour forms, for specimens collected some years ago over a distance of thirty miles showed variations in nearly every case. This Iris also appears to spread northwards into the Chumbi Valley and is possibly the Iris seen recently by the Mount Everest expedition on its march through Thibet.

In America there is a closely allied species called prismatica, with a solid stem which, in this case, is extremely wiry and slender. It is a graceful little species, with flowers not unlike those of a small sibirica, though its habit is different, for it comes up in rather widely separated, tufts instead of in dense masses.

That I. Clarkei and I. prismatica are less closely related than the other members of the group is shown, perhaps, by the fact that they will not hybridise readily with them. The other species can all be bred together, and it is possible to obtain both sibirica and Delavayi, in which the white ground is replaced by yellow which comes from I. Wilsoni. The amount of gold marking on I. chrysographes can also be increased by crossing that species with I. Forrestii, but as the hybrids lose something of the velvety richness of I. chrysographes, it is doubtful whether the hybrids are worth making, except as a test of affinity between the species. I. sibirica crossed with I. orientalis is sometimes entirely sterile, as is also I. sibirica crossed with I. Wilsoni. On the other hand, I. Delavayi crossed I. Wilsoni and I. chrysographes crossed I.Forrestii produce hybrids which seed freely. The latter cross especially gave rise to a whole series of curious mongrel forms. An exceptionally dry summer and the difficulties of gardening under war conditions put an end to most of these and it is doubtful whether it is worth while raising these hybrids again, for few of them are as pleasing as the original species. An exception must, perhaps, be made for I. Delavayi crossed Wilsoni, which is a very handsome and vigorous plant.

All Irises of the sibirica group seem to do best in an open soil rich in vegetable humus and abundantly supplied with moisture. They do well at the margin of ponds and streams, though Forrestii deserves a choicer place than this. The roots form a dense mat and penetrate the ground to a considerable depth, with the result that it is practically impossible to transplant a good sized specimen without checking it considerably. In all but the rainiest seasons it is, for this reason, inadvisable to attempt to move the plants until late in September or early in October and even then it is usually a year or two before the transplanted plants form such good specimens as they were in their original position. The best effects are often obtained by planting out young seedling plants in the positions where they are to flower and, if this is done early in the season and the plants are generously treated in the matter of water and humus, they should begin to flower in the following season and become large plants by the second year. Seedlings of these species are easily raised. All that is necessary is to sow the seed thinly in pots of rich light soil, well drained and containing plenty of sifted leaf soil and to cover the seeds with a bare half inch of soil. The pots should then be plunged to the rim in sand or ashes in the open and merely protected from the depredations of birds and other intruders by some arrangement of wire netting. No protection from frost is necessary, for its effects seem rather to be beneficial. Early in the year a sharp look-out should be kept for the tiny green points which begin to make their way through the soil in March or April, according to the season and it is then that the protection of a cold frame or a temperate house is beneficial to the young plants. There they are not checked by late frosts and the more rapidly they can be grown on, the sooner they will be ready to be planted out, with a better chance of growing into flowering plants by the succeeding year.

Siberian Irises

Note. The following extract from The Garden of Sept. 10, 1881 and signed "F." probably by Michael Foster is of interest from a number of points of view. As a matter of historical record it mentions many varieties of which acuta, Melpomene, sanguinea, and the little known nigrescens are still well-considered. The "Plant and Bulb Co." referred to is familiar to us under the name of R. W. Wallace & Co. and the article on the whole reveals a breadth of interest and a knowledge of plants that is unusual in current American periodicals. Ed.

Among the beardless Irises few are in so many ways interesting as the members of the group which we may speak of under the general name of the Siberian Iris. They are all graceful plants; some of them exceedingly beautiful. They are very widely spread, ranging all over Central and Southern Europe, and a large part of Asia, from France and Spain to China and Japan. They exhibit many curious affinities with other groups of Irises. Though we believe Dean Herbert to have been right in asserting that no true I. sibirica is found in America, many of the American forms are nearly allied to it. Between it and the wide and variable group of I. ensata there are also clear ties, while in another direction we can trace many connecting links between the typical sibirica and the gorgeous forms of I. Kaempferi. In fact, so closely is sibirica connected with so many other forms, that if we suppose, in accordance with modern doctrines, that all the varied forms of Irises have sprung from some common ancestor, I. sibirica undoubtedly may be regarded as still retaining many of the features of the ancient parent.

All the members of the group have certain general characteristics. Their leaves, growing in thick tufts, are narrow and slender, not unfrequently attaining a considerable height. The stalk, which is generally tall enough to throw the flowers well above the leaves, bears at its summit two buds enclosed in a common spathe, and in most cases there is still at least another flower lower down on the stem. In all cases the stem is hollow, in fact tubular; indeed, this is considered as diagnostic of the group, though I am rather inclined to think that it cannot be entirely relied on. The falls have a broad limb and narrow claw, the standards are narrow and erect, and the styles stand up from the falls instead of closely arching over them, so that there is free passage for insects without the anthers being disturbed. The flowers are in most cases small, but their colours are choice, and the delicate veining of the falls gives them a distinctive beauty. The capsule is obtusely triangular, and the seeds numerous and flat. The generally branching rhizome sends out dense masses of closely matted rootlets.

Though the general structure of the Iris flower is beyond question specially adapted for fertilisation by means of insects, several kinds of Irises are readily capable of self-fertilisation, and I believe that I. sibirica is one of these. In any case it seeds most abundantly, and the seed germinates rapidly. In most botanical gardens which I have visited the two forms of Irises which I have found supplanting rarer kinds in the Iris bed have been Pseudacorus and sibirica, the explanation being that these two forms, seeding freely, have scattered their seedlings in the places belonging to other species, and the vigorous seedlings have eventually usurped the labels originally belonging to forms which have died away.

In consequence of this energy in reproduction there exists in cultivation, besides the natural varieties, which are in themselves numer-

ous, a large number of seedling forms. To enumerate all these would be a laborious and hardly profitable task; I will therefore limit myself to a few distinctive forms.

First of all, there are two common forms, which we may take as typical of two divisions, two forms very distinct from each other, the difference between them being greater than between many good species.

The one which we may call the typical I. sibirica has pale yellowish or light green, somewhat flaccid leaves, often attaining the height of 2 or even more feet and though always narrow, varying a good deal in breadth. The other, which is I. sibirica acuta, has very narrow stiff dark green leaves, hardly exceeding 1 ft. in height. There are differences also in the form and colours of the flowers, and in the characters of the capsules of these two kinds.

A third distinct kind is the handsome form known as I. sibirica orientalis or sanguinea. The leaves of this are pale green, like the typical sibirica, but on the whole broader and taller. The flowers are larger, of a deeper colour, with a different veining, and the limb of falls especially broad and expanding. It derives its name from the red colour of the young shoots and leaves, though so far as my experience goes this feature does not seem to be constant; at all events in most of the specimens I have seen of this plant, though they were undoubtedly truly named, the young shoots were by no means conspicuously red; whereas the bright scarlet or crimson tinge of the spathe valves was a most striking character, giving the bud a remarkable beauty, even before the flower had opened.

These three kinds are very distinct; no one can possibly fail to make them out. But when we come to look over a collection of Siberian Irises, we find a great number of additional and intermediate forms.

The typical sibirica varies a great deal in the size of the plant, height and breadth of the leaves, colouring, veining, and even form of the flower. There is a white form tolerably common which was described by Gawler, in Botanical Magazine (t. 1163), as Iris flexuosa. The special name was given to it on account of the stem being bent or flexuose; but this seems to be by no means a constant character of the white variety. Of the acuta form I have seen more than one variety, and there exist in cultivation plants intermediate in character between acuta and the typical form; indeed, the kind known as I. maritima partakes to a certain extent of the characters of both. The ugly plant known as I. sibirica flore-pleno is in most cases a sport of the acuta form, though the type occasionally breaks out into reduplication. I. pratensis may be taken as a synonym of the type.

The beautiful flower figured in the plate, and known under the garden name of Melpomene, is, like its sister, the so-called nigrescens, somewhat a puzzle. It is undoubtedly a sibirica, and, apparently, it sprang from some member of what I have called the typical group; it may be merely a sport seedling, but I cannot help suspecting that some of its beauty is the mark left by foreign blood. In any case,, it is a beautiful plant, well worthy of careful cultivation. Years ago, Sweet described under the name of haematophylla a very desirable form of sibirica; this has generally been considered as identical with orientalis, but Sweet's description as well as his figure indicate a plant differing in many respects from the more typical orientalis, which is common in our gardens now. If it be not a different plant then, as Maximowicz indeed affirms orientalis, must be capable of very wide variation.

There exists in Japan still another form known as var. japonica, which I have never seen, and Mr. Barr possesses a very handsome, but

small-flowered form of sibirica, which he obtained from Japan, and which has characters as distinct as those of either of the three forms of which I spoke above. Of I.trigonocarpa, which Mr. Baker regards as a variety of sibirica, I know nothing. Lastly, I have seen at Colchester and elsewhere still other distinct varieties of sibirica; among them a charming dark coloured form, which the Plant and Bulb Company send out under the name of I. graminea of Lindley; it has, however, no relation to the true graminea. These, however, I must pass over. I have said enough to show how varied is the group, yet all the members of the group may with convenience be spoken of as Siberian Irises, as in so many other cases the ordinary botanical nomenclature fails us when we come to study any so-called species from a detailed, and especially from a gardening point of view.

In attempting to recommend a selection for gardening purposes I feel a difficulty, because I should be unwilling to reject any of them. Orientalis, with Melpomene and nigrescens, would, I imagine, naturally come first; but all the others, especially the large flowered named seedlings, vary so much in colour and general appearance, and the veining of so many of them is so characteristically beautiful, that anyone who has space enough will do well to grow several varieties. They are all of them so floriferous, that even the smaller-flowered ones by the number of their flowers become beautiful; and the dark green rigid foliage of the acuta variety makes the plant itself a handsome addition to a bed apart from its flowers. The only kind I cannot recommend is the I. sibirica flore-pleno. The Iris is certainly one of those plants which does not lend itself to reduplication.

Culture and position.—As the synonym I. pratensis indicates, the Siberian Iris is a meadow plant; it thrives best in rich, fat, damp soil, and this is, perhaps, especially the case with orientalis and some of the other large-flowered varieties. But if it is to flower well it must have abundance of sunshine; it will not show its real beauty in dampness begotten of shade; nor is it like I. pseudacorus and some other forms, absolutely devoted to it, when it becomes thoroughly established it will bear without even flinching an amount of drought which would be fatal to it when newly planted; indeed, I am inclined to think it flowers all the more freely under a moderate restraint as regards moisture. The closely-matted roots show that the soil must be rich and full of vegetable matter, but as far as my experience goes, this Iris has no special fancies, and will grow in any soil which has been made adequately good. In planting it, it will be well to secure this good ground to start with, for the plant has a very great objection to being moved. Transplantation will in most cases prevent the bloom of the succeeding summer. Moreover, its real beauty does not become apparent till the plant has grown into a good sized bush. Plant your plant, then, in thoroughly good soil, with appropriate surroundings, so that its head of flowers may be seen above dwarfer plants, standing out against still taller foliage, and then leave it alone. In a year or two, even though it flowers in May and June, when the garden is full of other beauties, you will, I think, be not dissatisfied with the Siberian Iris. F.

The Introduction and Hybridization of Beardless Irises

M. F. Laplace

Note. Extracts from a long and rather botanical article in The report of the International Iris Conference at Paris in 1922; a free translation. Note that blooming dates are for Paris. Ed.

Of interest in the beauty of its species, the Apogon group is also remarkable for the number of relatively important hybrids to which it has given birth. The species and varieties of this group also present the characteristic of late flowering as many bloom in late June or July. With one exception, of which we will speak later, the Beardless irises do not show as many brilliant varieties as the Bearded though there are many bright and varied colors. Iris kaempferi, one of the most interesting because of the number of garden varieties raised not only in Japan but in Europe and America is certainly one of the most beautiful of irises. Other species have also been used ("travailées") by breeders to the advantage of our gardens. Of this number are I.monnieiri, I.spuria, I.aurea, I.ochroleuca which in the hands of breeders like Sir Michael Foster and Messrs. Deleuil and Millet have given rise to some remarkable plants, things like Monspur, Juno, Premier, Dorothy Foster, and Shelford Giant from Sir. M. Foster, spuria Hyerense from Deleuil, ochraurea from Kew, and Canari from Millet. Other seedlings have been raised by other growers but the varieties have not been introduced, while some species, for example I.pseudacorus have resisted all attempts at cross pollination despite its abundant production of seeds.

The Apogon group comprises a large number of species, some of which are little known; it is useless to review them all as we are interested chiefly in those that play an ornamental roll.

I. (laevigata) albopurpurea Baker was introduced from Japan in an importation of I.Kaempferi, is hardy and blooms in late June or early July.

I. (spuria) aurea, Lindl. from the Himalayas is June flowering, handsome, perfectly hardy but rather shy in bloom.

I.delavayi, Micheli from Yunnan was first grown from seed sent by Abbe Delavay to the Museum of Natural History at Paris in 1889. Hardy and June flowering.

I.ensata, Thunb. Sir M. Foster has obtained a whole series of hybrids that are little known in gardens.

I.foetidissima Linne commonly called "gigot" from the smell of its crushed leaves has an interesting variegated variety, the leaves ribboned with white, and a pale yellow form, citrina.

I.forresti Dykes Discovered by E. H. Wilson in 1905 in Yunnan.

I.fulva Muhl. 1812. Flowers in June-July and has somewhat the aspect of a lily (L.croceum) in form.

I.graminea L. Introduced into gardens in 1597, May flowering.

I.hexagona Walt. and var Lamancei from Arkansas flower in May-June.

I.kaempferi Sieb. Introduced into Europe in 1850 first bloomed in 1857 at Verschaffelt in Belgium and many varieties were later imported from Japan. It might be noted in passing that, as with other plants from Japan (Lilium auratum, Aucuba japonica, Hosta) the Japanese horticulturists have produced marvellous variations through the course of years. French growers including Mr. Tabar and the Maison Vilmorin-Andrieux have increased the varieties and as Mr. Mot-

tet suggests they can be divided into three groups.

1. **Simple or type form.** The falls large, spreading horizontally, standards small, erect.
2. **So-called double.** In which the doubling is more apparent than real. The standards as large and horizontally spreading as the falls. The flower appears very full and compact and is most decorative.
3. **Double.** The stamens and often the styles or their crests are here transformed into petaloid segments of variable size and form and sometimes joined to the petals.

I.longipetala Herb. Introduced in 1862; June flowering.

I.mandshurica Maxim. A pale yellow form of I.pseudacorus from Eastern Asia.

I.missouriensis Nutt. 1880, May-June.

I.x Monaurea Foster. A handsome June flowering hybrid.

I.monnieiri DC. 1820, June-July.

I.x Monspur Hort. Foster. a number of named varieties introduced in 1890.

I.x ochraurea Hort. 1897. A reciprocal cross also made at Verrieres in 1897 gave a similar hybrid.

I.ochroleuca L. 1757. May-June. A double variety introduced by MM. Vilmorin. Shelford Giant and Canari are good.

Shelford Giant and Canari are good.

I.pseudacorus L. There is an interesting variegated variety with leaves margined with pale yellow.

I.sibirica L. Introduced in 1596 and there are many garden forms.

I.spuria L. 1759. May-June. Var.subbarbata, yellow; Celestial, China blue. Crossed with I.kaempferi by M. Deleuil it has produced the variety Hyerense sky blue in color.

I.unguicularis Poir. Not completely hardy at Paris; many varieties; Jan. to March.

I.versicolor. L. 1732, May-June.

There are still other less well-known species, some of recent discovery, some of little garden value, and others difficult of culture. Those passed in review (I trust readers will remember that I have translated only brief extracts) form an interesting group in the number of species, varieties, and hybrids as well as in their ornamental value.

New Irises from the Commercial Growers Point of View

W. J. Engle, Ohio.

It is most painfully evident that the commercial grower who wishes to be up-to-date has a big job on hand. With the multitude of new varieties pressing for recognition, with Mr. Bliss who cannot have seen Mother of Pearl, extolling the virtues of Queen Caterina, with rumours of two new "real" pinks, a tall, large dark yellow, and a tall light yellow and of American Dominion seedlings in all colors, 42 inches tall, the end is not yet.

It is the writer's ideal to grow eighteen or twenty varieties in quantity to help supply the wholesale demand. At our present rate of advancement this list should make almost a complete change in personel about once in a decade. To enter an iris must stand a rigid test. We will not bar out a variety with a naturally small rhizome but prefer one at least the size of a workingman's thumb. A variety that will

make a solid mat of rhizomes in two years and begins to deteriorate the third is too rapid a propagator to long be profitable as a money-maker. We prefer a root that will increase about 4-fold each year, the plant sturdy, healthy and not predisposed to root rot. We are always interested in an Iris that is said to be an improvement on an old variety and often disappointed. Things like Ma Mie, Ed. Michel and Flammenschwert supposed improvements on Mme. Chereau, Caprice, and Iris King are winners on the exhibition table but loosers in the field. Nine Wells as it bloomed for us two years ago in rather poor soil promised to be an improved Perfection but on richer soil it threw a tall stem that tumbled in every direction and we had to modify our opinion. Let the hybridizers go on and let them keep in mind that we want varieties that will safely go through the frequent trying winters that we have in a large part of this country.

We prefer a general purpose iris, varieties which in the open in the evening sun carry one to the Elysian fields and which, under the electric light in the home make you feel that you are in the land of dreams.

In the distribution of new varieties, the commercial grower should have first preference for the benefit of all concerned. It would be a good thing if they could be seen in a few well-distributed gardens the year of introduction. They should have at least a tentative rating. An amateur friend tells me he wishes to add Wild Rose to his collection. There is not a single catalog (one. Ed) that has come to my desk this year that lists it. What has become of it? Perhaps others also failed to get it when the getting was good. If there is no other way let us be on the alert and beat the amateur to it.

Ten to fifty dollars seems like a big price for one iris root. Mr. Williamson introduced Lent A. at $1.50 each which he evidently considered all that it was worth and sufficiently remunerative. But after all we cannot get away from the law of supply and demand and a thing is worth what it will bring. If we pay fancy prices we should receive fancy roots, stock bristling with life that is ready for business. I have found that such cannot always be obtained except from stock planted twelve to fifteen months. Last year I received two roots from a noted grower. To my dismay I found a well developed borer in the heart of one of them. I never informed him of this awful tragedy—it would have been kind to do so—but I make a note of it here that all who run may read.

We have always been able to turn over the original cost of expensive iris in two or three years with a high rate of interest and also to reserve a liberal working stock. Dominion, which died, has proved the one exception.

Rhizomes should be packed in excelsior with moss about the roots but with very slight moisture content. I have received an importation from Wallace packed in peat but not moist which looked as fresh as though from my own garden.

Another thing. With a good iris give us a good name. Romeo, Wild Rose; what shall we say to Dejazet, Flammenschwert?

Let the commercial grower be up and doing. When a new iris becomes popular let us be in on the ground floor with stock to sell. Many of you are with me on the "Sunset Limited". What we do we must do quickly. When "sunset and evening star" appear, may our gardens be aglow with the finest tints of the rainbow flower!

The Iris Borer

Ella Porter McKinney, New Jersey.

(From Horticulture, Mar. 1, 1924)

A night flying moth, **Macronoctua onusta,** dusky dun in color, and about an inch in size, emerging from the pupa by mid-September in the latitude of North New Jersey, deposits eggs at the base of the Iris foliage. These eggs winter over and begin to hatch in early May. The hatching period, judging from the varying sizes of the worms at differing dates of examination of foliage, spreads over some days, perhaps even weeks.

Safely inside the leaf, the eating goes on, the grub growing and working its way down the blade. It usually reaches the rhizome by or before August. There it gorges on the fragrant food at hand, grows rapidly to a repulsive dirty white grub, sometimes two inches in length and the size of an ordinary lead pencil. At this stage it soon passes into pupation, which is comparatively short (about three weeks with some well-grown sluggish worms, which I hatched out in a can of dirt, covered with gauze). Mid-September, or even earlier, the moth emerges. This, in brief, is the life cycle which, kept in mind, is an aid to intelligent fighting.

An absolutely effective control, of course, is to destroy either the **worm** or the **egg** before the worm! With only a few clumps of Iris, watching for injured blades, as described above, and pinching between the thumb and fore-finger is practicable and certainly efficacious. A more complete job can be made by drawing the entire blade, from the bottom up, between the thumb and finger. A pair of rubber gloves, if there is likely to be much of this to do, will be a welcome equipment. In large plantings, this method is laborious and, for me, impracticable because of lack of time and labor.

In the war days when a garden that had required the services of an all-the-year man had to be maintained by twenty-four hours per week hired labor, a long border of Iris into which maple leaves had drifted the autumn before, was ordered, in early March, burned off, to save time in cleaning. I was reckless of results because of the press of work and, possibly influenced also by the radio activity of experiment and research going on all about us! This row of Iris went right along growing and blooming and a careful search up and down in the summer failed to show the work of the borer, though it was present in other parts of the garden.

My notes show that conditions get right, in this section, for burning, about the middle of March. It is important that a good day be selected. From ten to five on a dry bright day, after several days of drying wind, is ideal.

When the planting is an established one, the dead blades of the Iris, lifted slightly, with fork or rake, a few hours before burning, usually make a sufficiently hot fire to cleanse the plants of eggs. On roots, planted the previous summer, leaves or other trash must be applied. Last year, in such places, I tried—and with such success that I shall repeat it this year—a torch made of discarded bags, bound with wire to the end of a long bean pole. This was set in a pail, containing a few inches of kerosene, until saturated. The operator rolled the blazing torch along the ground up one way and down the other, right over the plants. This saved carting material and made a quick, sharp heat which is essential. This torch-burning should not be used except on plantings well away from other perennials and shrubberies.

Clumps in long borders used in association with other perennials, I burn over successfully by making wet a circle with the watering pot and "standing by" with a pail of water and an old broom to dab out any encroaching flame.

The leaves, persisting on the rhizome at the time of burning will be, of course, cooked and will look unhappy and pallid. At that season with a good rain or two new foliage soon puts out. For plants like I. trojana and I. Caterina that keep fine foliage through the winter I have found it best to cut this back and then apply the sharp burning.

Clumps of I. kaempferi, I. sibirica and all heavily-foliaged Irises, if in borders with other perennials, should have the dead foliage well shortened before burning, else the conflagration is too great for neighboring plants.

I have tried the burning successfully and without injury on all species in my garden **except I. tectorum and I. gracilipes.** These emphatically resent the treatment. Even tiny I. cristata does not seem to mind a quickly racing small blaze. Emphasis should be laid upon getting the burning done as early as possible in the spring. The earlier the less likelihood of injury.

Stress must be laid also upon the necessity of doing the burning with a Spartan heart, fearlessly, quickly, sharply and cleanly, even though it may, at times, touch the bare rhizome. It does not mind a quick racing fire, but certainly would resent a bonfire above it.

Wherever the fire is made hesitant, because of nearby shrubbery, there the summer will likely disclose bitten leaves. A row of newly planted roots was spared one spring, early in my experimentation, because of nearby currant bushes. Three feet away a burned-over row showed scarcely a trace of the worm while every root in the row, nearest the currant bushes, showed summer evidence of the worm.

My observation has been that the moth selects newly planted and somewhat isolated roots and edges of rows for likely places of deposit for the eggs. Only five or six times have I actually seen this moth in the garden. The color is so that of earth, dead leaves, sticks and shadows it is practically impossible to see it. Once in mid-day it flew out from under my hand on a clump of Iris, and with swift parabolic flight settled thirty feet away. The closest search failed to disclose it. The other times have been at dusk when it was flying skulkily and low about clumps of Iris.

Stipulation for July or August delivery of roots by the Iris buyer would be a helpful curb in the spread of the Iris borer. The presence of the worm at that time is easily detected and can be dealt with summarily. I believe the nurserymen would welcome the relief from the spring rush which this spreading of the orders would afford. I have formed the habit of dipping in a solution of corrosive sublimate, 1-1000 in strength, every Iris root which comes into my garden and every one which goes out. This is death to animal and bacterial life and harmless to the plant. The druggist supplies these tablets made up, one tablet to a pint of water giving the requisite strength of 1-1000, i.e., the tablet of 7½ grains.

Each year I have grown more brave in the matter of burning, until now it is as much of annual routine as spraying the apple trees for scale, though I may see no scale. We can never know when the moth may make us an unwitting and unwilling host. I do not pretend to have exhausted the research, or presume to lay down the law for others. I love a garden. I specialize in Iris. For me the burning is the best aid I have found.

I wish to say emphatically that the Iris borer, so far as my experience and observation goes, is not in any way responsible for the "Iris rot".

Tid-Bits 4th

As a result of the recent meeting of the directors Mr. Wister and I were directed to consult with Prof. A. P. Saunders, the well-known Secretary of the American Peony Society, concerning methods of recording and recommending new introductions which had not been in existence for a sufficient time to permit of general rating. In pursuance thereof we have evolved the following proposals which seem to fulfil our requirements.

The great need seems to be an immediate Official Report upon novelties, something to guide the purchaser through the maze of "finest" irises. It is clearly neither practical nor just to discard a variety upon short acquaintance but it is safe to assume that competent judges will make but few mistakes in selecting novelties worthy of further trial. It is just varieties that we plan to designate by a numbered symbol. Such a symbol is not an award of merit, it is not even an honorable mention nor is it to be considered a Final Rating, it should however, indicate that the variety was considered sufficiently distinct and good for a trial planting. Let me state briefly, however, the terms of the proposed plan.

Registration of Names and of names only will be continued as before to prevent confusion of nomenclature. It is not expected that a breeder should reserve a name for problematical use but that he should own the seedling and wish to register its given name by sending it to the Chairman of the Committee, Mr. Charles E. F. Gersdorff.

Registration of Certified Varieties implies that the American Iris Society officially recommends said variety until five years after its introduction when it receives a percentage rating by symposium.

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LEE R. BONNEWITZ

Box 390,

VAN WERT, OHIO

For certification two requirements must be fulfilled, 1st. A report or rating signed by three competent judges, and 2nd a description must be filed sufficiently complete for purposes of unmistakable identification, preferably on a standard Data Card. Said description to be published as certified as soon as possible.

The judges (one of whom may be the originator) are to judge the growing and established plant in accordance with the Score Card (see back cover), and a full description is to accompany their report. Preferably the judges will act as a committee though their separate reports may be considered adequate.

With such a basis we should be able to advise our members to purchase none but certified novelties even though it is clear that many a meritorious new iris will not be certified immediately. There are however, a number of questions still to be settled and though we hope to make a beginning this very flowering season your suggestions will be most carefully considered before any results are published.

The question of judges is all important. I have sent out about twenty-five copies of the membership list wherein about one hundred names have been checked as those of presumably competent judges. The twenty-five are made up of oficers and members of the symposium jury, the hundred are members known at least by repute to Mr. Wister and me. The returnes should give a well-selected list of members who are competent and available for judging throughout the country. We hope that the English Iris Society and the National Horticultural Society of France will also select competent judges so that recommendations may cover foreign as well as American and Canadian novelties.

I trust you will note that the Score Card is adapted to garden judging and varies considerably from our exhibition score. Great care should

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be taken to establish the different standards for Dwarf-Bearded, Intermediates, etc.

Another mooted question is whether judgment should be made in the grower's garden, a public trial garden, or elsewhere. In order to give the widest possible latitude to the originator wherever he may be situated it was decided that the established plant, not its location was the important thing. A breeder may invite the judges to visit his garden, or he may send trial plants to an official Test Garden or to a number of competent judges as he may desire. It is to be understood however, that any plants sent on trial and their increase for three years shall remain the property of the donor. The plants must be neither given way, exchanged, or sold without the written permission of the originator. That is simple justice.

Two other points remain. The first involves the arbitrary rating that shall divide the sheep from the goats. Personally I lean to a rating of 7.5 as the dividing line. It emphasizes the fact that 7.5 marks a plant of considerable value, it is not so high that it places too high a value upon what is at best a rating at sight, and yet withal a conscientious judge cannot give even 7.5 to a variety that is not sufficiently distinct to find a place in his own garden. Fortunately however, this point does not need immediate decision and there are some months ahead for open discussion. Another consideration that may be left open is the symbol to be used in conjunction with the name of the Certified variety. It will probably be a number, preceded by a letter corresponding to the year of introduction. For example Ambassadeur might be designated as A1. It was introduced in 1920 and does not receive a final rating until 1925 and yet the tentative rating is sufficient to merit our recommendation.

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1000's of Seedlings only **$6.00 per 100**, 50 or more varieties in each 100. As I am not naming one in 1000 you are apt to get fine varieties. After July first. Not sent prepaid.

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Box 1-S, Beltsville, Maryland

Such are the plans and I think that they are sufficiently developed for general action if you so desire. We may change our standards and methods but here is a basis for certification which you may act upon. Briefly the originator should plan to forward to the Secretary a signed report by competent judges and accompanied by a full description. Our action is retro-active as it will effect the introduction of 1920 as well as the planned-for introductions of 1925 or later.

M. F. Denis has sent in a rather interesting note as to the origin of I. pallida Dalmatica. "I. pallida is from the Tyrol and Dalmatica should, from its name be from Dalmatia but this has not been proved even by Mr. Dykes and there seems to be no foundation for the report that it has been found in Asia Minor.

"Several years ago, by artificial fertilization, I obtained a number of seed pods which produced some twenty plants that bloomed in 1920-21. These are of two types, in one of the spathes are scarious as in I. pallida, and the flowers are similar in size and color to Dalmatica, in the other the spathes are still scarious but are delicately tinted with brownish red as in I. cengialti and the flowers are darker than in Dalmatica. All the seedlings are from 1.10 to 1.30 meters in height. At the time of crossing I had no I. cengialti so that it could not have been so crossed through the agency of insects and it therefore seems clear that Dalmatica is merely a hybrid between I. pallida and I. cengialti."

While we are considering the subject of crossing I wish to mention Mr. Williamson's statement in the extremely interesting introduction to his recent Supplement to the Longfield Iris Farm catalog. Among other points he states that "with the exception of breeding work done in recent years in England, most of our present day high rating iris are from first generation hybrids with one or both parents selected largely for their size." He then goes on to specify the varieties "Queen Caterina, Anna Farr, Conqistador, etc., and unless I misundersand "first generation" he is clearly at fault. Queen Caterina is Queen of May x Caterina, the pod parent of heterogenous parentage to say the least and Caterina itself a 1st generation hybrid. Rarely, if ever, also do we produce a plicata such as Anna Farr in the first generation and even in Conqistador (Juniata x mesopotamica) Juniata is not a species. I should be more willing to state that most varieties were at least 2nd generation hybrids than that there were as few as Mr. Williamson imagines. I should agree most heartily however, in his statement that there has been but little real Iris breeding. To mention but a few examples to prove the rule; Shekinah, the 3rd generation from Dalmatica, Yellow Moon the 4th; Nimbus is the 1st generation from Trojana but Morning Splendor at least the 2nd; Sherbet is the 2nd from Dalmatica or cypriana but Rajput or Jennett Dean are 3rd; and so it goes. We may rarely trace parentage but the percentage of 1st generation seedlings is presumably very small. If it were not that you have all probably read Mr. Williamson's preface I should reprint it in full. It is well-worth the reading.

Mr. James writes in one of our first reports on Lord Lambourne one of Amos Perry's new introductions. "It has—personality—one would like to say, that makes it stand out instantly from among a score of fine competitors. I think its mass effect will be wonderful". Then he goes on to recommend Ringdove as deserving a higher rating and Firmament for its clear tone and fine carriage." I am glad that he registers a "hearty approval of the Directors suggestion that the Intermediates be raised in the rating. Quality, tone, style, and habit are worth quite as much as size."

Since the first pages of Tid-Bits went to the printer I have heard further from Mr. Wister and Prof. Saunders concerning the proposed certification of varieties. We are none of us wholly satisfied with the plan and yet it seems worthy of trial.

We agree, however, that a vote of 7.5 ought to be sufficient to secure certification and Prof. Saunders brings out the point that "new varieties might be rated by three judges on the basis of cut flowers and by one on the observation of the growing plant. It would not be so very difficult ordinarily to get the unbiased opinion of one reasonably good expert as to the growing qualities of a plant from observations in the field.". He then goes on to say "It appears to me that the difficulty in all our ideas for the appraisal of new varieties lies in the fact that very few of our iris, or peony growers are competent to pass on the question whether, or not, a given new variety is distinct from those we already have. To do this involves a pretty good acquaintance with all the best varieties of the last twenty-five years including—and here is the snag—those of the last five years."

This is a most reasonable statement and can only be approximately refuted by a conscious and determined reluctance on the part of all judges to certify any doubtful variety. We should reverse the usual procedure and consider the variety guilty until proved otherwise by something more than circumstantial evidence. Clearly the introduction has five years in which to win a certificate and a single doubt expressed by even one of the first judges should be sufficient to prevent immediate action. The plan will only work if and just in so far as the number of certified novelties remains comparatively small. It may be reasonable to recommend a variety for a particular section of the country but even then only a small percentage should be certified.

Exhibitions

With a season that each day is becoming more unseasonable it seems impossible to set even approximate dates for exhibitions and I can add but little to the announcements in Tid-Bits 3rd.

The Annual Meeting will be held in Washington, D. C. May 27-28, in conjunction with the exhibition of the American Horticultural Society. Full announcements will come from their secretary Prof. D. Lumsden, Battery Park, Bethesda, Md.

Miss Josephine Kinnier, 518 Washington St., Lynchburg, Va. has written concerning the Iris Exhibit of the Garden Club in the middle of May.

Continued on page 38

To Collectors and Breeders

The Huron Valley Iris Gardens boast one of the finest collections to be found anywhere.

There is always a surplus in such a garden and of course when such surplus occurs it is for sale. If you wish a special plant or plants, will gladly quote prices. Will have a limited number of such wonderful iris as Lady Chas. Allom and Eden Philpotts at $5.00 each in July.

FOR LANDSCAPE EFFECTS

This July I will have about 1500 choice unnamed seedlings for sale at $8.00 per hundred (delivery not paid). Parentage Ricardi — Mesopotamica—Pallida — Junonia—Dominion—Trojana, etc.

SAM. BURCHFIELD

Huron Valley Iris Gardens

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Specialties

Irises, Paeonies, Delphiniums

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Catalogues on Application

M. E. BLACKLOCK

Miss Daisy Hume, Winchester Pike, Lexington, Ky. is acting as Show Secretary for the exhibition of Iris and other flowers similar to the successful one of last year. The exhibit is held in "The Auditorium" under the auspices of the Lexington Garden Club.

Mrs. E. K. Root, 990 Asylum Ave., Hartford, Conn., as President of the Hartford Garden Club plans also for the showing of other flowers and for a lecture by our pioneer iris grower, Bertrand Farr. The exhibit is to be held in the chapel of the Center Church House, corner of Gold and Lewis Streets on the afternoon and evening of June 4th. It is hoped that miniature gardens will be shown including the model of a group of four lots executed by the students of the Lowthorpe School of Landscape Architecture for Women which won the second prize at the International Flower Show in New York.

Miss Helen Ricketts, 720 Bankers Trust Bldg., Indianapolis, Ind., is acting as our representative at the exhibit of The Garden Flowers Society. May 23rd and 24th are possible dates but postals will be sent out in advance. The small Bulletin sent out by this Society is always interesting.

The Hamilton Horticultural Society of Ontario, Canada, is again this year holding an Iris Show but our Canadian friends seem reluctant to accept our cooperation.

C. E. Cary University Farm, St. Paul, Minn. is the Chairman of the Show that will be held in that city probably in early June. Place Studebaker Sales Rooms.

Mrs. Walter Ranchons, 38 West 5th Ave. Columbus, O., is the corresponding Secretary of the Columbus Iris Society which proved such a delightful host for our 2nd Annual Meeting. The date remains unsettled but May 24th is approximate.

The 1st National Bank of South Bend, Ind. has written in for information concerning an Iris Show to be held about June 1st.

Mrs. W. E. Clark, Sharon, Mass; invites local members to tea June 10th, from 4 to 6 P. M. Her garden was originally planned by the Wyomissing Nurseries and is not without interest. I had hoped that it might be possible to arrange for a field day in the neighborhood of Boston but I cannot foresee the date of my return from my Ohio visits and there have been no volunteers for the job.

H. S. Jackson as President of the Lafayette, Ind. Garden Club tells me that they are planning a local iris show about May 30th. He has, by the way, a splendid collection and I am looking forward to his reports on European novelties.

In closing I wish to call your attention to the enclosed Ballot, to the symposium of 1919 introductions sent out with the membership list, and to the fact that our membership is slightly below normal. This last is not at all alarming, but in our brief existence each year has brought a distinct increase in membership and we hope that through the help of each and every member it may continue. Our first year with a membership of about five hundred was phenomenal and we quite out-distanced all other similar societies except the Rose Society. Our growth has been normal and inspiring with no assistance from paid advertisements, or the offering of premiums, but within the last year, almost, The Rose, Dahlia, and Gladioli Society have initiated such policies and hence shown a marked increase in membership. Your officers on the whole consider that such methods do not make for permanency of interest and yet numerical comparisons of memberships have ceased to be as satisfying. You can help by telling your friends of our work and to a lesser extent by advising them to at least add our Bulletins to their garden libraries. As editor I should say little of their worth but we have made easily available much authoritative information on irises.

Iris missouriensis, Altitude over 6,500 ft, San Bernandino Mts, Calif. Photo by S. S. Berry

CALIFORNIAN IRISES IN WASHINGTON, D. C.

B. Y. Morrison

I have had plants of I. douglasiana, I. tenax and of I. longipetala for several years. I.longipetala, Herbert, presents no difficulties in culture and throws its slender stalks of most delicately veined pale lavender-blue flowers each spring. The petals are very slender and often have a characteristic twist which is unmistakable.

I.douglasiana, Herbert, is an evergreen species with tough wiry leaves which are completely destroyed if the plants are not heavily mulched with decaying leaves. Even then the tips are often winter-killed; but the growths of the spring are so rapid that new foliage is soon provided. Many color forms occur but with me the most vigorous is a pale ivory white one which is also rather larger than the blue forms. Transplanting must be done just as the plants come into strong growth in the spring. Even then the results are not very satisfactory. Seedlings are easily raised. I have obtained seed in the spring. This will lie dormant all summer with a few germinations in the fall. I keep the potted seeds in a cold frame during the winter. Those plants which germinate in the fall often damp off during the winter but the following spring there is a good germination. This is also true for seed of I.tenax, I.macrosiphon, and I.bracteata save that in the last case germination has been very scanty. Seedlings should be grown to four or five leaves before pricking out. Then if they cannot be planted in permanent quarters they should be put in thumb pots. Use sandy soil rich in humus and free from lime.

These plants are of such great delicacy and beauty that they deserve great care in establishing.

So far I have not succeeded in getting plants of I.purdyi Eastwood and the few plants of I.hartwegi Baker, that I obtained, died. Its affinity to I.tenax should make it of easier culture than some.

I.tenax is a little easier to handle when once established because it does not have evergreen foliage but like all the others it resents transplanting.

IRIS SCORE CARD

The growing plant, in flower, and its value to the garden picture is the point to be judged, but it must be remembered that each variety should be compared with others of similar color or habit and credit given only for superior development. Partial credit only is often advisable.

PLANT—20%.	
Growth exceedingly strong, and vigorous	10%
Effect in garden; free-flowering, floriferous.	10%
STALK—20%.	
Poise; the flowers pleasantly proportioned in size and shape to height and branching habit.	10%
Height; 3 feet or over in the taller groups; 27 inches in the early intermediates, variegatas, or amoenas.	10%
FLOWER—35%.	
Color; clear; venation or reticulation, if noticeable, clearly defined.	15%
Form; if distinctive and pleasing, e. g. Iris King, Dalmatica.	10%
Size; e. g. Monsignor, Dorothea, Juniata, Loreley in their class.	10%
Substance; firm and resistant to weather conditions.	10%
OUTSTANDING QUALITIES—Unless a variety is **both clearly distinct and pleasing** it should not receive further credit. General all round excellence, the full 15%. Unique form or coloring, 10%. Fragrance, 5%. Foliage; good thruout the season, 10%. Value for exhibition or as a cut flower, 5%.	15%
	100%

OFFICERS OF AMERICAN IRIS SOCIETY

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Bindfallowing #11 Ea 44

The American Iris Society

To Iris Growers and Breeders

All iris growers and breeders are requested to forward at once their varieties of 1923 and 1924 introduction to the Head Gardener, N. Y. Botanical Garden, Bronx Park, New York City. The plants received will be planted under number and become eligible for judging in 1926. Upon request, all increase will be returned to the donor.

A Silver Medal and five Awards of Merit are available for distribution among the varieties introduced each year and certified numbers will be assigned other less worthy introductions.

The GARDEN CLUB OF AMERICA offers the first medal for the finest variety introduced in 1923, an American Iris Society medal is offered for the finest variety introduced in 1924.

The two year period gives the plant time to become well-established. The awards are few and will be given wide publicity. It is to the interest of the introducer to secure such official recognition for a variety and to the interest of the amateur gardener to take advantage of these recommendations.

Foreign growers may import under permit from the N. Y. Botanical Garden but must bear all costs of duty and transportation.

Tid-Bits 5th

The above announcement initiates a new policy of awards which we hope will prove of real assistance in the selection of novelties and as a Bulletin is more permanent than a mere leaflet I shall leave the full statement for No. 12 which I hope will be issued by October. Mr. Wister and I have been working on a classification of the garden irises and copies have now gone out for checking, but it will be some time before final reports are ready for publication. Naturally we are rather pleased with the scheme. It is of course a color classification and based largely on that of the Royal Horticultural Society which we have waited for since our first organization, but, though numbered, or lettered, classes are a necessity, the use of type varieties simplifies things immensely. To tell you that Dionyza is Class II A, Type 2b means little, but to state Type Caterina makes you wonder whether it is really an outstanding variety. You will be surprised how large some of these types have become as classes, and much interested to find others still few in number. Montezuma for example was for many years unique, but now it has two companions in what, for lack of better term, we might call plicates with a yellow ground color. Jean Chevreau is a charming, full flower, the standards pale yellow very lightly sanded, and the falls lighter while the still unintroduced Loudoun (H. M. Washington, 1924) is similar but of deeper tone. These three, the sole representative of their type are none the less clearly distinct one from another and of good garden value.

There are many old and new varieties of, say, Dalmatica or Alba Victor type, many of fairly recent origin of Lady Foster or Caterina

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type, but so few of Pioneer, Imperator, or Gaudichau type that we are forced to pick a little known novelty as the type variety. It is not of course possible to clearly define similarities in every case, arbitrary divisions are a necessity, but every attempt is a step in the right direction. Take the Dominion Race for a case in point, some are clear colored, some considerably blended in tone, but most of them have a certain strength and substance that is outstanding and clearly apparent, however difficult it may be to analyze the distinction. Dominion falls easily into the Black Prince type, but Yeoman verges towards an unusually rich Amas and Bruno towards Prosper Laugier, or Nibelungen without being actually comparable to any existing varieties.

Like the Check List, I think the classification will be in a constant state of flux.

I was fortunate enough to have some delightful garden visits this spring and secured descriptions of about two hundred varieties, most of which were entirely new to me. Not unnaturally I was rather bewildered and overcome and as yet I have not studied my notes sufficiently for a detailed report. In every garden I found one or more seedlings of high quality and outstanding merit, rarely things that would supercede our introduced novelties, but frequently things that would extend the range of color, or height, or time of bloom. Knowing of their existence would not prevent my buying introduced things to any extent, but I do look forward to getting some of them in the future. Generally speaking the Wallace introductions were of high quality individually, but very frequently not outstanding as novel in color and habit. On the other hand the Cayeux things, at least as young plants, would not rate over 9 perhaps, but were sufficiently outstanding to be remembered. It is rather interesting to consider the lists as a whole and attempt to trace tendencies. Mr. Wallace seems to have a predilection for lavender selfs and bicolors whether they were originated by Foster, Bliss, or Hort. M. Denis has a more catholic taste though despite Mlle. Schwartz, Mme. Durrand, J. B. Dumas, and others he seems to have centered his interest upon blended plicatas for a period. Mr. Bliss also has specialized in plicatas, clear colored ones, though one finds many pallidas, some variegatas, and of course the Dominion race. This last is his most ontstanding achievement without question, although Citronella may prove as fine a parent as Dominion. Sir Arthur Hort and George Yeld as represented by the Wallace introductions have concentrated their efforts much more than is actually probable. One cannot imagine a breeder growing only things like Lord of June or Hermione, Queen Elinor or Oporto, good as they are. I have seen samples at least of many of the Perry things. They seem to lack perfection of form and substance in general, often the colos combinations do not appeal to me, but I do not know them well enough to draw broad conclusions.

In the introductions of Vilmorin and Cayeux there is little personality, good or fine things are marketed after thorough testing and almost invariably they prove real additions to the garden. Goos and Koenemann are also impersonal, but vigorous growth is emphasized and there is little imagination shown in the selection of colors.

The firms of C. G. Whitelegg & Co. and the Orpington Nurseries are too new to reveal their characteristics. They introduce things from Mr. Bliss and from Mr. Dykes. The latter shows a decided preference for varieties of botanical interest, or of unusual origin and they are still too new to be judged on garden effect. Silver Mist I find charming, but Aphrodite and others I reserve for further consideration.

In this country Mr. Farr is outstanding both as a breeder and grower. His first productions were contemporaries of Caterina and Mrs. Alan

Gray and that they still merit a place in the garden is sufficient praise. With the exception of a few oddities they are distinctly garden varieties and the fact that so many are types suited for use in the classification suggests their importance and wide distribution.

I think Mr. Fryer himself would acknowledge that a number of his introductions were a mistake, but recently he has set a higher standard and few collections should be without W. J. Fryer and others of his best. Vigor and strength under Minnesota conditions have characterized his varieties.

Mrs. McKinney and Mrs. Cleveland are interested in garden effects, neither have introduced many things and among them are some delightful soft colorings. Bobbink & Atkins have followed in the footsteps of Goos & Koenemann as to vigor but the colorings are less striking.

I think I agree with Mr. Bliss in considering Miss Sturtevant's seedlings on the whole distinctive in color. Some are vigorous, some not, some large, some not, but with the exception of the yellow selfs headed by Shekinah there is a marked small number of the common pallida, plicata, and variegata types. One may dislike these blended colors, but one rarely mistakes one of her varieties when once grown, for something else.

Shull, Morrison, Hall, Williamson, and many others are still but little represented in the lists. They have introduced some varieties of highest quality and among the seedlings of Mr. Wareham, Dr. Ayres, Mr. Phillips, Mrs. Emigholz, to mention only a few from Cincinnati, are equally fine things for the future. In average high quality Mr. Wareham clearly stands first but as yet has not developed a wide range of colors.

On the western coast, growers are handicapped by their ideal climate, Their productions may or may not thrive in our gardens. I am thankful that they do thrive in mine. San Gabriel is a beauty, and I have spoken often of the late Mr. Mohr's wonderful things that are now being introduced by Campos Altos Gardens. They show interest and variety of habit and color.

Mr. Weed introduced his first set last year and they bloomed well this spring in my garden. Azure Glow is too close to Blue Jay, but the others rank with Cayeux introductions and things like Caporal, Elberon, etc. I expect to like them even better in a mass.

All this is a series of impressions, which, put together, serve more or less as a screen through which I look at the new offerings of each grower, some are rosy-hued, others darkened by clouds of past indiscretions.

The Mid-Western Peony and Iris Society was organized in Des Moines on March 15th and with our members Mrs. DuMont, Mrs. Orwig, and Messrs. Roenfield, and Rosenfield on the executive committee there should be hearty cooperation with the A. I. S. They plan for an Iris show in 1925 and the establishment of a test garden at the State College at Ames, Iowa.

I wonder if any of you have had experiences similar to those of Mr. Pudor who writes "How do you explain the fact that seeds from different varieties behave so differently? There is Alcazar, the seeds are always slow to germinate and very few come up before the second year while with Seminole there is prompt and thrifty germination." Miss Sturtevant has had no similar experiences, in fact out-of-doors a very small percentage of fresh seeds are carried over to germinate the second year, the case is often different with purchased or old seed.

In its breadth of cooperation the recent Federation of the Garden Clubs of New York State should prove of interest to all who are interested in the advancement of horticulture. Mrs. Paris, the motive power behind this federation, was a Charter member of the A. I. S., also the first to cooperate with us in an iris exhibition, and always most cordial.

A rumour comes in of a Yellow Japanese Iris, a seedling that came to light in the cast off flats of some twenty years ago. I dislike to be suspicious but it sounds unbelievable and I expect that the plants sent to the test garden will prove to be ochroleuca or perhaps even pseudacorus. The amateur grower makes no extravagant claims and I hope that he really has something so novel.

I think my few days in Mr. Meade's garden did more than anything else to make us realize that we had been too narrow in our judgment and rating of new introductions. There were good masses of Gaudichau, Mlle. Schwartz, Ensign and Mother of Pearl, all varieties highly rated, but there were masses also of Roseway and Mrs. Cowley, Demure and Dora Longdon. Now none of these last would I rate much over 7.0 as compared to the first group and yet when I liked the coloring the garden effect was equally fine. Gaudichau is superb as an exhibition flower, it is also without parallel in the garden whether rated by our Exhibition Score Card or the Garden score published in Bulletin 2, it wins high rank. But Roseway rates about 7.0 on the show table and almost 9.0 in the garden. Both were listed at fairly high prices, the first brought no disappointments, the second many and these last have proved undeserved.

It seems to me that, if we must choose between an exhibition flower and a garden flower, the garden flower should be chosen because irises are primarily flowers for the garden. I will acknowledge that it is hard to praise Roseway and others of that type, but in the long run they are probably more worthy than, let us say, Lord of June. It is impossible to correctly judge garden value from a single stalk in a vase, but it is possible to make two ratings, one based on the cut flower and the other based on the growing clump.

There are, of course, varieties like Dalmatica, Princess Beatrice, probably Queen Caterina, Ambassadeur and others which are fully satisfactory in both respects, but there are many color classes and types wherein no variety is at all comparable to these as exhibition and yet these undeveloped types are of extreme value in the garden. Among variegatas but few are rated over 8.0 and who can deny their cheer in the garden, take the plicatas, the amoenas, none are highly rated but everyone wants them none the less.

The finest irises will rate equally high on both scores, but until all classes are equally represented we need a separate score that will suggest the garden value of garden flowers. We should not neglect substance and texture, form and all the minor excellencies, but we must give added importance to vigor of growth, poise of flowers and clearness of color, and a modified form of the Score Card in Bulletin 2 will do just this. Personally I shall try to differentiate hereafter between garden and exhibition irises when it is to the advantage of a variety.

August, 1924.

R. S. STURTEVANT, Secretary.